Sept. 7, 1954 R. HENDERSON 2,688,678

ELECTRIC SWITCH POINTER KNOB

Filed Sept. 28, 1951

Fig. 1.

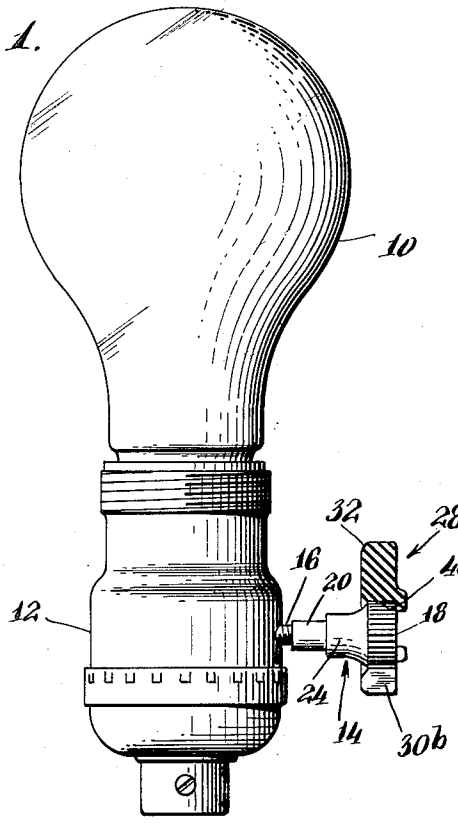


Fig. 2.

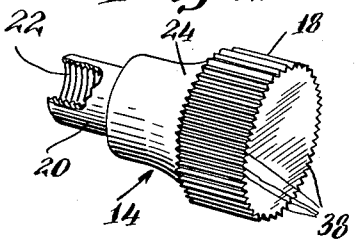


Fig. 3.

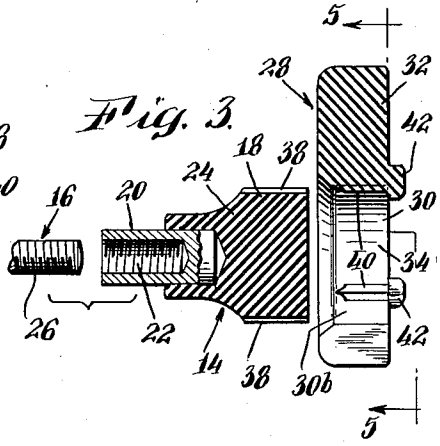


Fig. 5.

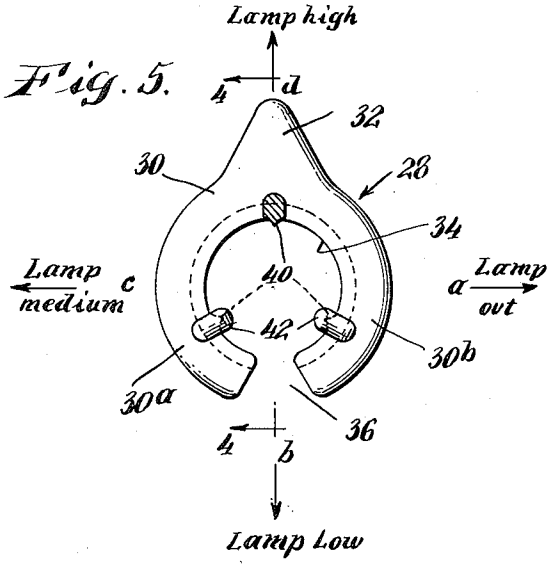
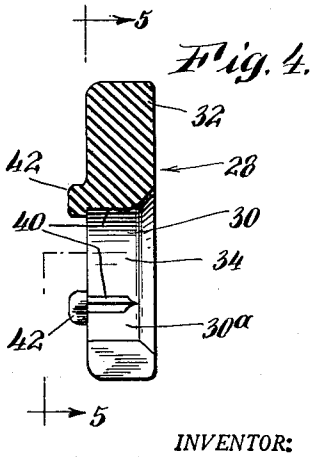


Fig. 4.



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ELECTRIC SWITCH POINTER KNOB

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5 Claims. (Cl. 200—172)

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The present invention has for its principal object the provision of an improved pointer knob for an electric switch which will enable a user, by the sense of sight or touch, to ascertain whether an electric switch controlling a so-called three-way electric incandescent lamp or like equipment is adjusted to operate the lamp or equipment at low setting, medium setting or high setting. The invention is hereinafter described, for illustrative purposes, as applied to the control of such an incandescent lamp, without, however, limiting the invention to that particular purpose.

The stated object is accomplished by the present invention, of which a preferred illustrative embodiment is shown in the drawing in which—

Figure 1 is a side elevational view of an electric incandescent lamp in a lamp socket having a switch pointer knob according to the present invention; a portion of the knob assembly being shown in vertical section.

Fig. 2 is an enlarged perspective view, partly broken away, of a more or less conventional switch knob forming a part of the knob assembly shown in Fig. 1.

Fig. 3 is an enlarged, central, vertical sectional view of the components of the said knob assembly; the parts being separated but lined up for assembly.

Fig. 4 is a view taken on the line 4—4 of Fig. 5.

Fig. 5 is an end elevational view of the switch pointer element, partly in cross-section, on the irregular lines 5—5 of Figs. 3 and 4.

Figure 1 serves to illustrate an incandescent lamp 10 held within a lamp socket 12 having associated therewith a switch knob 14 mounted upon a switch spindle 16 and having a grooved finger-grip periphery 18 enabling a user to rotate the knob and the spindle to operate a switch (not shown) within the socket to control the operation of the lamp. The lamp and socket, usually, are disposed in the upright position shown, as, otherwise, the heat of the lamp may damage the socket, and, to say the least, would make it too hot to manipulate.

The structure thus far detailed is more or less conventional. The lamp 10 is a so-called three-way lamp which may be lighted either "low," "medium" or "high." In use, the knob 14 is always turned in one direction. If the lamp is off, a quarter turn of the knob switches the lamp to "low" setting; a further quarter turn of the knob switches the lamp to "medium" setting; a further quarter turn of the knob switches the lamp to "high" setting; and a further quarter turn of the knob switches the lamp off.

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The shortcoming of the detailed arrangement is that it is practically impossible for the user, when the lamp is lit, to be certain as to the setting under which the lamp is operating. Thus, if one wishes to use the lamp for reading and wishes to be certain that the lamp is operating at "high" setting, he must turn the knob 14 one or more quarter turns to "off" setting and then turn it three more quarter turns to obtain the desired "high" setting. Or, if one wishes to be certain that the lamp is at "low" setting for soft general illumination, he must turn the knob 14 one or more quarter turns to "off" setting and then turn it one more quarter turn to obtain the desired "low" setting. The same nuisance is encountered, and a very similar procedure must be followed, if one wishes to be certain that the lamp is operating at "medium" setting.

While it has been common practice to employ pointers on rotatable knobs of various kinds to enable one readily to perceive the setting or angular position of the knob, it has not thus far been done on knobs such as knob 14 in the illustrated switch structure. This is because it has been found that the most satisfactory manner of mounting the knob 14 has been to screw it onto the spindle 16. It is customary for the knob 14 to have a sleeve 20 internally threaded as at 22, said sleeve being firmly and fixedly embedded within a body portion 24 of molded material. The knob is screwed on to the externally threaded end 26 of the switch spindle 16. It should be clear that in any such threaded interconnection, through the sleeve 20, between the spindle 16 and the knob 14, it is impossible to predetermine the angular positon of the knob when it is fully threaded upon the spindle.

The present invention solves this problem in a very simple manner by providing a separate pointer element 28 which may easily be associated with the knob 14 after the latter has been fully screwed on to the spindle 16.

Although the pointer element 28, within this invention, may be of various forms adapting it for non-rotative association with and relatively to the knob 14, the single embodiment shown in the drawing should serve to illustrate the principles of the invention. In that embodiment the pointer element is formed of at least slightly deformable molded plastic material such as, for example, fairly stiff "Bakelite." It may advantageously be molded with a more or less cylindrical body portion 30 and an integral pointer portion 32.

The body portion 30 is formed with an axial bore 34 and, to adapt it to be pushed axially upon

slightly different sizes of knobs, the said body portion may be formed with a breach **36** which gives the body portion **30** the character of two somewhat resilient, arcuate fingers **30***a* and **30***b*.

The diameter of the circle, partially defined by the inner surfaces of said fingers, in the shape to which the pointer element is molded, should preferably be less than the outside diameter of the knob **14** with which the pointer element is to be associated so that, when said element is pushed axially on to the knob, a contractile force is stored in the fingers **30***a* and **30***b* causing them to grasp the knob firmly to constrain the knob to turn with the pointer element.

The periphery **18** of the knob **14** is commonly grooved axially as at **38** to afford a non-slip grip for operation of the conventional portions of the switch. Similarly, such grooves afford a non-slip grip for the body portion **30** of the pointer element upon the switch knob. If, as can be provided, the bore **34** is slightly smaller in diameter than the outside diameter of the switch knob **14** and the molded material of which the pointer element is formed is a soft plastic, the ridges defining the grooves **38** become embedded in the plastic material defining the said bore, thus assuring that the pointer element and the switch knob will be constrained to turn together when assembled as shown in Fig. 1.

Recognizing the fact that switch knobs of different manufacture differ slightly in outside diameter, a pointer element according to this invention may be formed with several, preferably three, well defined, equidistant, axial ridges **40** formed integrally with the body portion **24** in the bore **34**. On smaller knobs the ridges **40** will seat within grooves **38** on the knob with only slight spreading of the fingers **30***a*, **30***b*. On somewhat larger knobs the fingers **30***a*, **30***b* may spread considerably but the ridges **40** will afford a firm three-point grip of the pointer element upon the switch knob. Plural integral lugs **42**, formed on the outer side of the body portion **30** of the pointer element and extending radially inwardly to overlie the outer end of the bore **34**, serve to limit the extent to which the pointer element may be pushed axially on to the switch knob **14**.

Although the foregoing indicates in a general way the manner in which the pointer knob of the present invention may be used, the knob lends itself to a particular manner of usage in which the direction of pointing of the knob bears a natural or logical relation to the particular setting of the lamp switch so that no scale or indicia need be employed with or as a part of the device. Thus, in a preferred manner of usage, the pointer element **28** is pushed axially onto the switch knob **14** when the latter is in such setting that the lamp is not lighted, while the pointer element is pointing horizontally toward the right. That is, the "lamp out" position indicated by arrow *a* in Fig. 5. A quarter turn of the pointer element **28**, carrying with it the knob **14**, from the "lamp out" position to "lamp low" position indicated by arrow *b*, switches the lamp to the lowest setting at which it may operate; a further quarter turn to arrow *c*, "lamp medium" position, switches the lamp to its medium setting; a further quarter turn to arrow *d*, "lamp high" position, switches the lamp to its high setting to operate at its greatest brilliance; and a further quarter turn to arrow *a* switches the lamp out. The natural or logical relation resides in the fact that when the lamp is lighted and the pointer points down, the lamp is "low"; when it points sidewisely, the lamp is medium; and when it points up, the lamp is high. With this arrangement there is no need to use a dial or indicia to apprise the user of the lamp setting.

It will be apparent that there need not necessarily be a breach **36**, so that instead of having fingers such as **30***a* and **30***b*, the body **30** of the pointer element may be formed merely with a bore **34** and, if the pointer element **28** is formed of soft enough, resilient plastic material, it may firmly grip switch knobs of somewhat different sizes. Obviously, also, the ridges **40** may be dispensed with where the plastic material used is relatively soft.

Although the preferred and simplest manner of practicing this invention as hereinbefore described avoids the use of a dial or indicia, such indicating means may be used within the invention if so desired.

It should be evident that the present inventive concept may be embodied in various structures other than those disclosed and suggested herein without departing from the invention as set forth in the following claims.

I claim:

1. A knob and pointer element for a non-pointing rotary switch knob comprising integral pointer and body portions, the body portion being formed of resilient material and comprising a wall having therein an axially extending, approximately cylindrical recess adapted to receive therewithin such a switch knob with a grip fit constraining the switch knob to turn with said element.

2. A knob and pointer element according to claim 1, the said wall having integral, axially extending, internal ridges therein adapted for engagement with the outer periphery of such a switch knob.

3. A knob and pointer element according to claim 1, the said wall being formed with an axially extending breach setting apart parts of the wall as opposed, resilient, arcuate fingers which are adapted to flex to accommodate plural sizes of switch knobs therebetween.

4. A knob and pointer element according to claim 3, the said wall having three integral, axially extending, internal ridges in said recess, two of said ridges being symmetrically disposed on the inner sides of said fingers and the third ridge being disposed midway between the said two ridges whereby to provide a three-point contact with a switch knob with which the pointer element is associated.

5. A switch knob assembly comprising a switch spindle having an externally threaded outer end, a switch knob threaded onto the outer end of the spindle, and a separate knob and pointer element having integral pointer and body portions of which the body portion is formed of resilient material and comprises a wall having therewithin an axially extending recess within which the switch knob extends; the said wall being in firm frictional engagement with said knob to constrain the latter to turn with the pointer element.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,516,771	Herscher et al.	July 25, 1950